



POSTAL REGULATORY COMMISSION
Washington, DC 20268-0001

Office of the Secretary and Administration

June 11, 2018

Megan J. Brennan
Postmaster General, CEO
United States Postal Service
475 L'Enfant Plaza SW
Washington DC 20260

Dear Postmaster General Brennan:

The Postal Regulatory Commission (Commission) transmits the attached independent actuarial report on the review of the demographic and salary assumptions used for Postal Service workers by the Civil Service Retirement System (CSRS). This report was prepared in response to a request¹ from the United States Postal Service, in accordance with the Postal Accountability and Enhancement Act of 2006 (PAEA),² which requires that the Commission procure the services of an actuary upon receiving such a request from the United States Postal Service.

The Commission finds the report prepared by Segal Consulting, *Civil Service Retirement System Demographic and Salary Assumptions*, satisfies the requirements of the law.

Sincerely,

A handwritten signature in blue ink, appearing to read "Stacy L. Ruble", is written over a horizontal line.

Stacy L. Ruble
Secretary

Attachment

¹ Docket No. SS2018-1, Request of the United States Postal Service for Review of the Office of Personnel Management's Determination Regarding Civil Service Retirement System Liability, November 13, 2017.

² Pub. L. 109-435, 120 Stat. 3198, 3250-51 (2006), sec. 802(c), not codified; see 5 U.S.C. § 8348 note.

PMG Brennan
June 11, 2018
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cc: The Honorable Ron Johnson, Chairman Senate Homeland Security and
Governmental Affairs Committee

The Honorable Claire McCaskill, Ranking Member Senate Homeland Security and
Government Affairs Committee

The Honorable Trey Gowdy, Chairman House Government Reform and Oversight
Committee

The Honorable Elijah Cummings, Ranking Member House Government Reform and
Oversight Committee

The Honorable Jeff T.H. Pon, Director, Office of Personnel Management



Report to the Postal Regulatory Commission

Civil Service Retirement System Demographic and Salary Assumptions

May 16, 2018



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May 16, 2018

Mr. Stacy Ruble
Secretary/CAO
Postal Regulatory Commission
901 New York Avenue NW, Suite 200
Washington DC 20268

Re: Review of Demographic and Salary Assumptions for US Postal Workers in the Civil Service Retirement System

Dear Mr. Ruble:

We are pleased to present the results of Segal's review of demographic and salary assumptions used by the Office of Personnel Management (OPM) in the valuation of liabilities for US Postal Service (USPS) workers under the Civil Service Retirement System (CSRS).

Our report includes a review of:

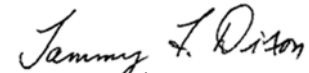
- **Relevant Documents.** We reviewed materials provided by your staff, OPM, and the USPS Office of Inspector General (OIG) actuaries (PRM and Korn Ferry).
- **Actuarial Standards of Practice (ASOP).** We reviewed the applicable ASOPs to determine compliance with professional actuarial standards of the Actuarial Standards Board.
- **Assumptions.** We reviewed the process and analysis that was prepared to select the actuarial assumptions for determining the CSRS supplemental liability for compliance with generally accepted actuarial principles.
- **Recommendations.** In our professional opinion, it is appropriate to use postal-specific assumptions for determining the CSRS supplemental liability. The specific assumptions have not been finalized, although the process that is being used by OPM actuaries to determine them (as described at the April 12 meeting of the Board of Actuaries) is reasonable.

This review was conducted by Tammy Dixon in accordance with the standards of practice prescribed by the Actuarial Standards Board, and reviewed by Eli Greenblum. We are Fellows of the Society of Actuaries, Members of the American Academy of Actuaries, and Enrolled

Actuaries under ERISA. We both meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein.

The assistance of the PRC is gratefully acknowledged. We appreciate the opportunity to serve as an independent actuarial advisor for PRC and we are available to answer any questions you may have on this report.

Sincerely,



Tammy Dixon, FSA, MAAA, EA
Vice President and Actuary



Eli Greenblum, FSA, MAAA, EA
Senior Vice President and Chief Actuary

cc: Kevin Carrington

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Executive Summary

The Postal Regulatory Commission (PRC) retained Segal Consulting (Segal) to conduct an independent review of the demographic and salary assumptions used for Postal Service workers covered by the Civil Service Retirement System (CSRS).

PRC specifically requested that we evaluate:

- Whether the current assumptions were developed in accordance with generally accepted actuarial principles and methods set forth in the Actuarial Standards of Practice (ASOPs);

Finding: In our opinion, the process for selecting assumptions was in compliance with the relevant ASOPs, as they are currently issued and reflecting the recently proposed revisions to those ASOPs.

- Whether the current assumptions are reasonable and appropriate given the specific structure of the CSRS plan of benefits;

Finding: The current assumptions produce valuation results that are within the range of reasonable outcomes based on generally accepted actuarial principles. However, it would be more appropriate to use postal-specific assumptions.

- Whether the prospective postal-specific assumptions are developed in accordance with generally accepted actuarial principles and methods set forth in the Actuarial Standards of Practice (ASOPs);

Finding: We are satisfied that the process for selecting assumptions is in compliance with the relevant ASOPs, as they are currently issued and reflecting the recently proposed revisions to those ASOPs.

- Whether the CSRS supplemental liability should be re-determined using the prospective postal-specific assumptions.

Finding: We have concluded that, in the context of actuarial standards and evaluation of past experience by both the OPM and USPS OIG actuaries, it is appropriate to determine the CSRS supplemental liability using postal-specific assumptions for mortality rates, mortality improvement, salary increases, normal retirement rates, disability retirement rates, and withdrawal rates.

Conclusions

We reviewed all information supplied to us. We evaluated the process for selecting assumptions for compliance with the relevant ASOPs, as they are currently issued and reflecting the recently proposed revisions to those ASOPs. We considered the reasonableness and appropriateness of the demographic and salary experience that will serve as the basis for assumptions for the September 30, 2017 CSRS actuarial valuation, selected based on the experience for U.S. Postal Service workers compared to the experience for all federal government workers.

We have concluded that, in the context of actuarial standards and our own experience, it is appropriate to determine the CSRS supplemental liability using the following postal-specific assumptions:

- Mortality and Mortality Improvement
- Salary Increases
- Normal Retirement Rates
- Disability Retirement Rates
- Withdrawal Rates

The vast majority of the financial implications of postal-specific assumptions for CSRS will be due to differences in mortality experience. CSRS has for many years been frozen as to new entrants, so that 81 percent of CSRS plan participants were in pay-status as of September 31, 2009¹ and most others are close to the end of their career. Therefore, other postal-specific demographic assumptions will have only a modest effect on the measurement of CSRS obligations. For active employees, the salary increase assumptions will be the only assumption, other than mortality, with material impact. The balance of this report discusses our review process and our findings in more detail.

¹ *Finance Directorate Retirement Projections*, prepared in March 2017 by Adam Reese, of PRM Consulting Group, and Craig Graby, of Korn Ferry/Hay Group.

Overview

Background

The *Postal Reorganization Act of 1970* (PRA or PL 91-375) established the United States Postal Service (USPS) as an autonomous Federal entity and transferred the responsibilities of the Post Office Department (POD), a U.S. government agency, to the U.S. Postal Service (USPS). One of the requirements was the continued participation of USPS in the Civil Service Retirement System (CSRS), thus ensuring continuity of pension coverage for Postal Service workers.¹

CSRS has a final average salary, back-loaded benefit formula. By this, we mean that the pension is computed as a percentage of a worker's high three-year average salary, and that the percentage increases non-uniformly with additional service — the annual benefit accrual rate is 1.50% of high three-year average salary for each of the first five years, 1.75% for each of the next five years, and 2.00% for each year thereafter.² The maximum benefit is capped at 80% of high three-year average salary.³

On November 13, 2017, the Postal Service requested that the PRC initiate a review of decisions made by OPM regarding the demographic and salary assumptions used in the determination of the CSRS supplemental liability as of September 30, 2016. The request was filed pursuant to section 802(c) of the Postal Accountability and Enhancement Act of 2006 (PAEA), requesting the PRC examine the appropriateness and accuracy of OPM using government-wide demographic and salary-growth assumptions rather than those specific to Postal Service CSRS employees and annuitants. The PRC then utilized a RFP process to engage the services of Segal Consulting to conduct this review and to produce this report.

The Civil Service Retirement System (CSRS) is a defined benefit retirement plan for non-military federal employees, generally only those hired prior to 1987, that is closed to new entrants hired on or after January 1, 1987. The Board of Actuaries meets annually to establish the actuarial assumptions used by the OPM in preparing their annual actuarial report for CSRS.

Actuarial Concepts

The actuarial valuation of a retirement system is performed as of a valuation date, to estimate the benefits expected to be paid at various future times under a particular set of actuarial assumptions, taking into account the effect of advancement in age, anticipated future compensation, and future service. An actuarial cost method is used to allocate the present value of future benefits to various time periods. The “normal cost” is the share of the total value of benefits allocated to the valuation year, without regard to any surplus funding or deficit position. The “actuarial liability” is the accumulated normal costs for the current set of active employees that is allocated to years before the valuation date. The “unfunded liability” is the shortfall between the assets set aside for funding the retirement system and the actuarial liability.

¹ <https://www.gpo.gov/fdsys/pkg/STATUTE-84/pdf/STATUTE-84-Pg719.pdf>, Section 1009(d)

² <https://www.opm.gov/retirement-services/csrs-information/computation/>

³ <https://www.opm.gov/faqs/QA.aspx?fid=735eda40-61a8-45df-b6ad-47185f4c91a5&pid=4251088f-9b60-407e-b0a7-b4f54af791c6>

CSRS does not target funding of the unfunded actuarial liability under the closed plan over any defined period, but PAEA requires the portion of the unfunded liability allocated to the USPS to be paid off by 2043. The USPS is not responsible for paying the annual normal cost of its participants. The OPM annual actuarial valuation is prepared for financial reporting purposes under Statement of Federal Financial Accounting Standards 33 in accordance with 39 USC 3654(b).

OPM Final Regulations on Funding

On October 25, 2017 the OPM released a final rule that amends the USPS funding provisions established under 5 USC 8423(b). The final rule amends OPM regulations to provide for the use of postal-specific assumptions regarding demographic factors in the calculation of the USPS supplemental liability. The final rule also adds 5 CFR 841.415 through 841.417 to the regulations, establishing the procedures and requirements for filing a request for reconsideration of a supplemental liability determination filed by the Secretary of the Treasury or the Postmaster General. The final rule requires that the actuarial analysis submitted with the request for redetermination must demonstrate a difference in the supplemental liability of at least 2 percent of the value of benefits calculated by OPM.

Our understanding is that the USPS is the only Federal employer participating in CSRS that is responsible for paying any of the actuarial cost of its participants. Thus, there is no other example at the Federal level of employer-specific actuarial assumptions used to determine the supplemental liability.

Review of Documents

OPM Office of the Actuary Materials

We were provided the documents described below and were able to discuss the reports with OPM Actuary Gregory Kissel, ASA, EA, and MAAA. Mr. Kissel was helpful in providing us with an outline of the OPM procedures for preparing the 2015 experience study.

- *Funded Status of the Postal Service's Pension Obligation as of September 30, 2016*, prepared October 26, 2017 by Greg Kissel.
- *2015 Demographic Rates* summary provided by Greg Kissel. This document summarizes government-wide experience from the years 2006-2015, and was supplemented with a series of 37 slides presented to the Board of Actuaries in June, 2017. The Board reviewed graphs that show demographic and economic experience under CSRS, as provided by OPM, and advised OPM on the setting of the actuarial assumptions for the September 30, 2016 actuarial valuation.
- OPM slides presented by Greg Kissel to the Board of Actuaries at their June 1, 2017 and April 12, 2018 meetings. The 2006-2015 experience was used for the 2017 Board meeting presentations; the 2017 slides did not analyze Postal Service versus non-postal experience. The same data (2006-2015) was used for the 2018 Board meeting presentation. However, the 54 slides presented this year include separate Postal Service experience.

USPS Office of Inspector General Materials

We were provided with the reports identified below and had two meetings with Adam Reese, FSA, FCA, MAAA, EA, and Craig Graby, FCA, MAAA, EA, who were contracted by the OIG to review the reports in detail.

- *Finance Directorate Retirement Projections*, prepared in March 2017 by Adam Reese, of PRM Consulting Group and Craig Graby, of Korn Ferry/Hay Group.
- *Actuarial Report of Postal Employees in the Federal Employees' Retirement System*, prepared in March 2017 by Adam Reese, of PRM Consulting Group and Craig Graby, Korn Ferry/Hay Group.
- *Actuarial Report of Postal Employees in the Federal Employees' Retirement System*, prepared in March 2018 by Adam Reese of PRM Consulting Group and Craig Graby of Korn Ferry/Hay Group.

Review of Actuarial Standards of Practice

Actuarial Standard of Practice (ASOP) No. 35, Selection of Demographic and Other Non-Economic Assumptions for Measuring Pension Obligations

Actuarial Standard of Practice (ASOP) No. 35 provides guidance in developing demographic assumptions. ASOP No. 35 was modified in September 2014 and is applicable for actuarial valuations with measurement dates on or after June 30, 2015. A proposed revision was submitted to members of the actuarial profession for comments and suggestions in April 2018.

The standard recommends that the actuary follow a general process for selecting demographic assumptions. The first step of this general process is to identify the types of assumptions to use. The actuary should consider relevant System provisions that will affect timing and value of any potential benefit payments, the likelihood of all contingent events - such as retirement, disability or death - that trigger the payment (or cessation) of participant benefits, and the **characteristics of the covered group**.

The next step in the process is to identify the relevant assumption universe. The assumption universe may include experience studies based on populations considered **representative of the group at hand**, or general studies of trends relevant to the specific type of demographic assumption, and System experience to the extent that it is credible.

The third step in the process is to consider the assumption format. Section 3.3.3 specifies that “*In many situations it is appropriate for the format to include assumptions for different segments of the covered population. For example, it may be appropriate to have different mortality tables for males and females or different turnover tables for salaried and hourly employees.*”

The final step in the process is to select assumptions and evaluate the reasonableness of each assumption. The specific experience of the Systems should be incorporated but not given undue weight if recent experience is attributable to a phenomenon that is unlikely to continue. For example, if recent rates of termination were due to a one-time reduction in workforce it may be unreasonable to assume that such rates will continue.

ASOP No. 35 also provides specific guidance on setting the mortality and mortality improvement assumption in Section 3.5.3:

Mortality and Mortality Improvement Assumptions *The actuary should consider the effect of mortality improvement both prior to and subsequent to the measurement date. With regard to mortality improvement, the actuary should do the following:*

- i. *adjust mortality rates to reflect mortality improvement prior to the measurement date. For example, if the actuary starts with a published mortality table, the mortality rates may need to be adjusted to reflect mortality improvement from the effective date of the table to the measurement date. Such an adjustment is not necessary if, in the actuary’s professional judgment, the published mortality table reflects expected mortality rates as of the measurement date.*

- ii. *include an assumption as to expected mortality improvement after the measurement date. This assumption should be disclosed in accordance with section 4.1.1, even if the actuary concludes that an assumption of zero future improvement is reasonable as described in section 3.3.5. Note that the existence of uncertainty about the occurrence or magnitude of future mortality improvement does not by itself mean that an assumption of zero future improvement is a reasonable assumption.*

Actuarial Standard of Practice (ASOP) No. 27, Selection of Economic Assumptions for Measuring Pension Obligations

Actuarial Standard of Practice (ASOP) No. 27 provides guidance in developing economic assumptions. ASOP No. 27 was modified in September 2013 and is applicable for actuarial valuations with measurement dates on or after September 30, 2014. A proposed revision was submitted to members of the actuarial profession for comments and suggestions in March of 2018.

As with ASOP No. 35, the standard recommends that the actuary follow a general process for selecting demographic assumptions that includes identifying components of the assumption, evaluating relevant data, considering other factors and selecting a reasonable assumption.

With respect to selecting a compensation increase assumption, Section 3.10 states the actuary should review available compensation data including: employers' current compensation practices and any anticipated changes; historical compensation increases and practices of employers in the same industry or geographic area; historical national wage and productivity increases; and collective bargaining. Section 3.10 also provides that it is appropriate to take volatility into account if compensation amounts vary materially from year to year.

The best estimate salary scale is generally constructed using the "building block" approach recommended in ASOP No. 27, which combines best-estimate ranges for each of the components of the pay scale: inflation, productivity, and merit. The inflation and productivity components are combined to produce the assumed rate of wage inflation. This rate represents the "across the board" average annual increase in salaries shown in the experience data. The merit component includes the additional increases in salary due to performance, seniority, promotions, etc.

Actuarial Standard of Practice (ASOP) No. 4, Measuring Pension Obligations and Determining Pension Plan Costs or Contributions

Actuarial Standard of Practice (ASOP) No. 4 provides guidance to actuaries for measuring obligations. ASOP No. 4 was modified in December 2013 and is applicable for actuarial valuations with measurement dates on or after December 31, 2014. A proposed revision was submitted to members of the actuarial profession for comments and suggestions in April, 2018.

The very first item in the ASOP No. 4 guidance in Section 3.2 General Procedures states that the actuary should "*identify the purpose of the measurement.*" The ASOP includes actuarially determined contribution requirements as one example of a measurement purposes. Since the OPM is measuring CSRS obligations for the purpose of determining the USPS amortization payment, we feel it is appropriate to use USPS demographic experience in estimating those costs.

Actuarial Standard of Practice (ASOP) No. 41, Actuarial Communications

Actuarial Standard of Practice (ASOP) No. 41 provides guidance to actuaries with respect to actuarial communications. ASOP No. 41 was modified in December 2010 and is applicable for actuarial valuations with measurement dates on or after May 1, 2011.

Overall, the actuarial reports that we reviewed communicate results with clarity, are complete, and follow the required Actuarial Standards of Practice for actuarial communications (ASOP No. 41). However, the slides presented at the Board of Actuaries meeting on April 12, 2018 did not reflect several ASOP No. 41 requirements, including: identify the responsible actuary, state the actuarial findings, and identify the methods and procedures used.

The ASOP recommends when the actuary is providing an oral communication, he or she should consider the disclosures summarized above. It also provides that “*where the oral communication may be passed on to other parties, the actuary should consider following up with an actuarial document.*” Mr. Kissel is aware of our work for the PRC. Therefore, it would be appropriate for his slides to be accompanied by a subsequent actuarial document, to fully comply with the Actuarial Communications ASOP. We presume there will be meeting notes released by OPM at a subsequent date. Those meetings notes may satisfy the missing elements of ASOP No. 41.

Actuarial Standard of Practice (ASOP) No. 51, Assessment and Disclosure of Risk Associated with Measuring Pension Obligations and Determining Pension Plan Contributions

Actuarial Standard of Practice (ASOP) No. 51 provides guidance to actuaries with respect to the disclosure of risk that actual future measurements may differ significantly from expected future measurements. ASOP No. 51 was issued in September 2017 and is applicable for actuarial valuations with measurement dates on or after November 1, 2018.

The Standard recommends the actuary identify risks that may be reasonably anticipated to significantly affect the plan’s future financial condition, and includes as an example *longevity and other demographic risks*. Due to the delayed effective date, this new standard will not apply until the September 30, 2019 CSRS actuarial valuation is prepared. Nonetheless we encourage the OPM Actuary to consider the new guidance as appropriate actuarial practice when performing the September 30, 2017 and September 30, 2018 CSRS actuarial valuations.

Review of Assumptions

Assumptions Analysis

A critical component in measuring the actuarial liabilities for CSRS is the selection and the application of the actuarial assumptions. With respect to the assumptions, we independently reviewed the reasonableness of each of the demographic assumptions. We also compared the methodologies used in the OPM actuarial experience review and assumption setting processes to those used by actuaries contracted by the USPS OIG to prepare reports on Postal Service employees in the federal retirement systems.

Comparison of OPM and PRM/Korn Ferry Methodologies

In general, the actuaries used similar methods in reviewing the postal-specific experience under the CSRS, used similar experience periods for the review, and reported findings that were generally consistent. In particular, when compared to the experience of non-postal workers, mortality is higher for male Postal Service annuitants and lower for Postal Service disabled annuitants, and Postal Service employees receive lower salary increases. One area of difference is in the assumption selected for the ultimate mortality improvement rate; the OIG actuarial report showed that the ultimate annual rate of improvement selected was 0.75% for males, and 0.50% for females, at ages below 90. In contrast, the OPM actuary uses an ultimate rate of improvement of 1.0% for both males and females.

The actuarial communications provided to the USPS OIG included a report with substantially more commentary and explanatory notes than the OPM slides presented to the Board of Actuaries of the CSRS in June of 2017 and April of 2018. The USPS OIG Actuarial Report included extensive analysis for the salary assumption. While OPM focused on a review of experience, the USPS OIG report also included an outline of the terms of each of the four major collective-bargaining agreements in place and summarized the outcomes of various arbitrations that analyzed Postal Service employee wage premiums and attempts to moderate salary increases.

Demographic Assumptions

The demographic assumptions used to value CSRS liabilities should reflect the expected occurrence of various events among participants. The assumptions should reflect specific characteristics of the System and participant groups, and produce reasonable results. A reasonable assumption is one that is expected to model the contingency being measured and not expected to produce significant gains and losses. The types of demographic assumptions used to measure pension obligations include, but are not limited to the following:

- Mortality
- Mortality Improvement
- Retirement
- Termination of employment (withdrawal)
- Disability

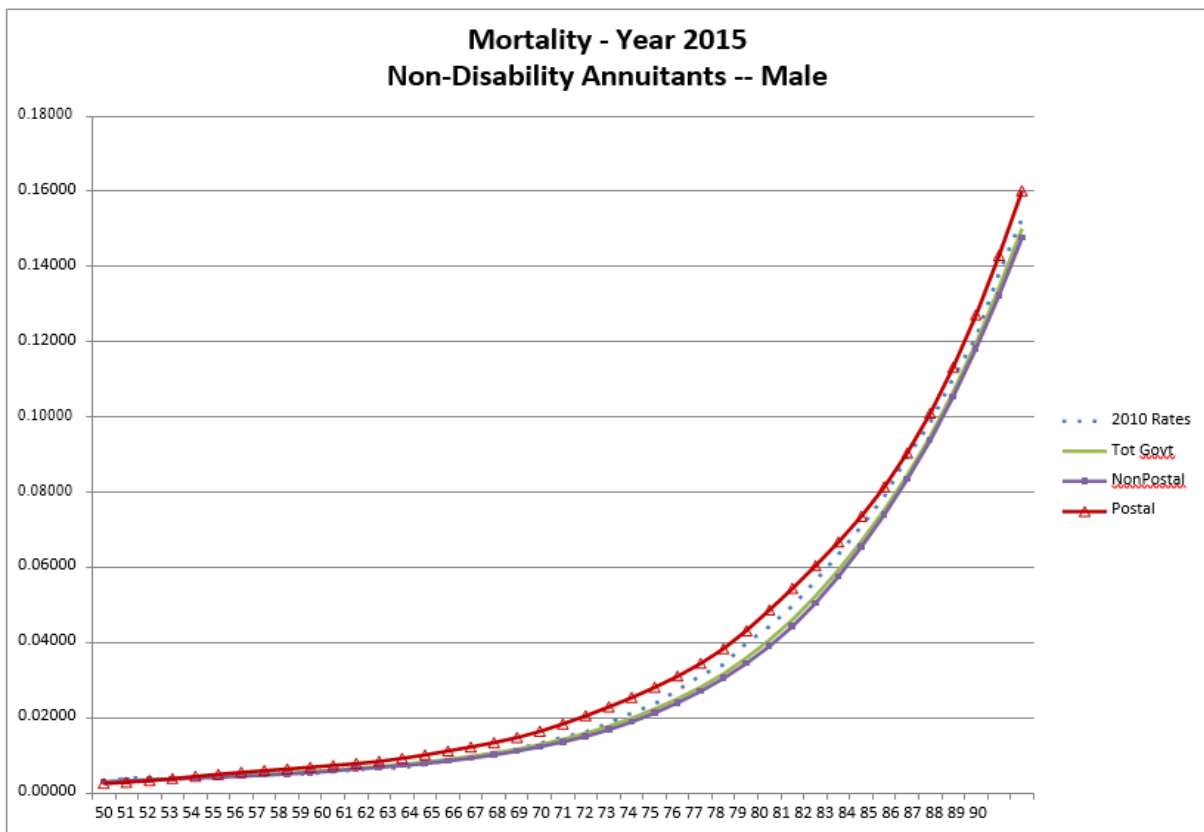
Mortality

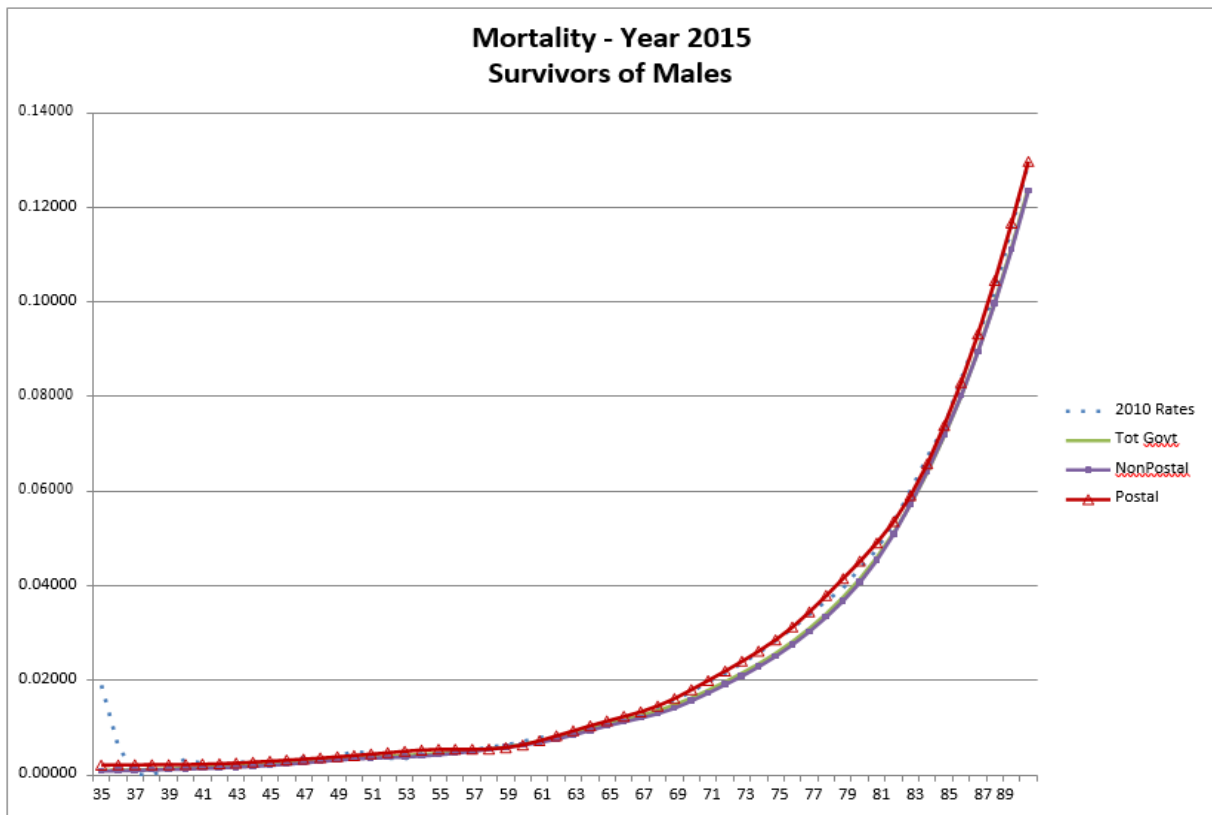
OPM performed extensive reviews of the mortality experience for the FERS and CSRS in the period 1996 to 2015. Experience was broken into categories, split by gender, for:

- Employees
- Non-Disability Annuitants
- Disability Annuitants
- Survivors of Employees and Annuitants

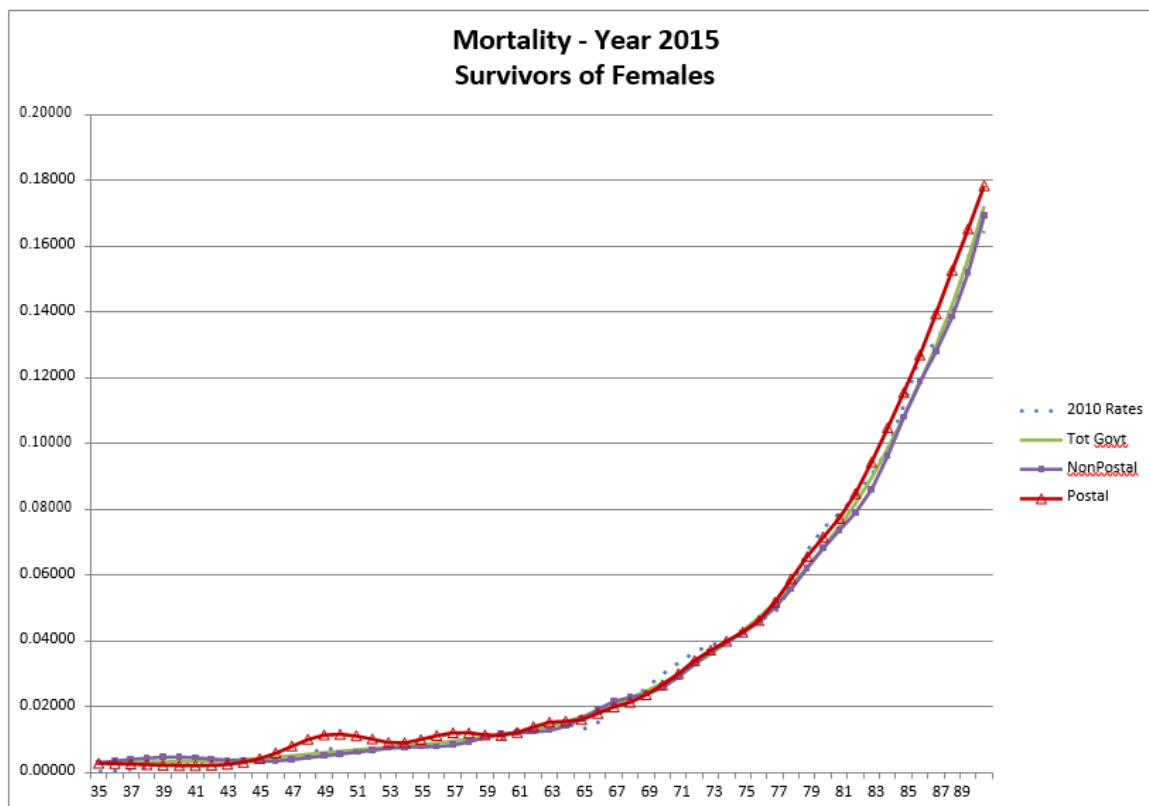
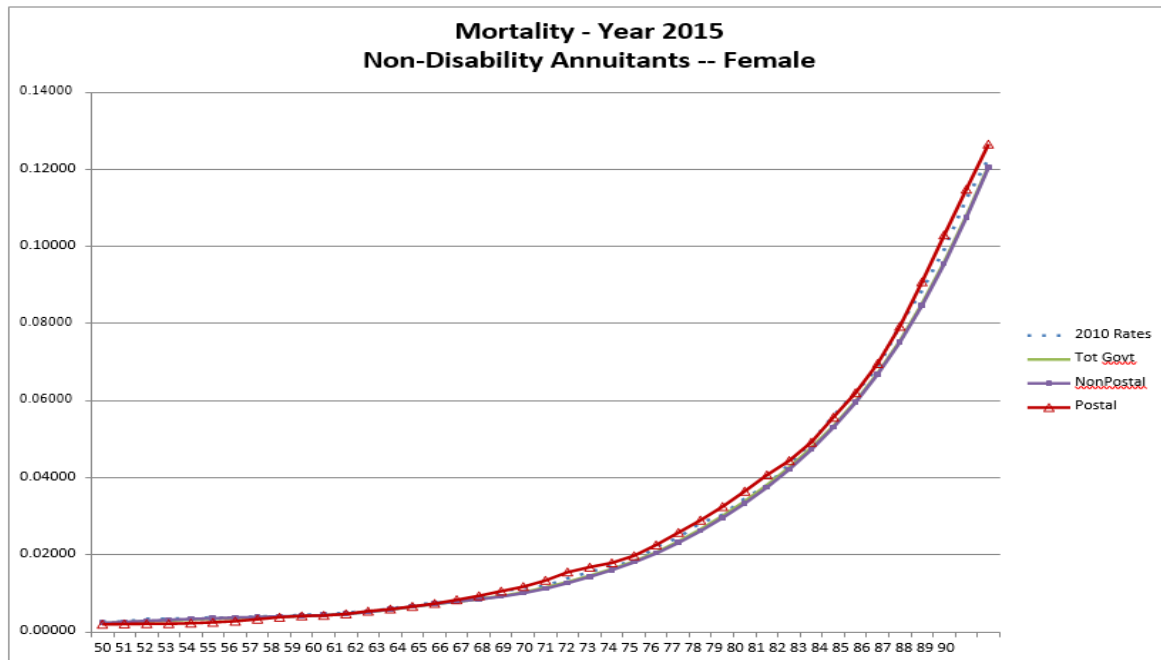
The results were shown for all federal government employees of each category, and in April 2018, separate non-postal and Postal Service experience was shared by OPM. The USPS OIG actuaries conducted a similar study on mortality differentiation. The Postal Service experience is notably different from non-postal experience as shown in the following Charts presented at the Board of Actuaries meeting in April 2018. In particular, compared to non-postal experience:

- Postal worker mortality is higher for male employees, male non-disability annuitants, and their survivors. This graph shows the annual rate of mortality for male pensioners from ages 50 to 90. The red line demonstrates the higher postal-specific experience at nearly all ages. The graph on the following page shows the annual rate of mortality for surviving spouses of male pensioners.

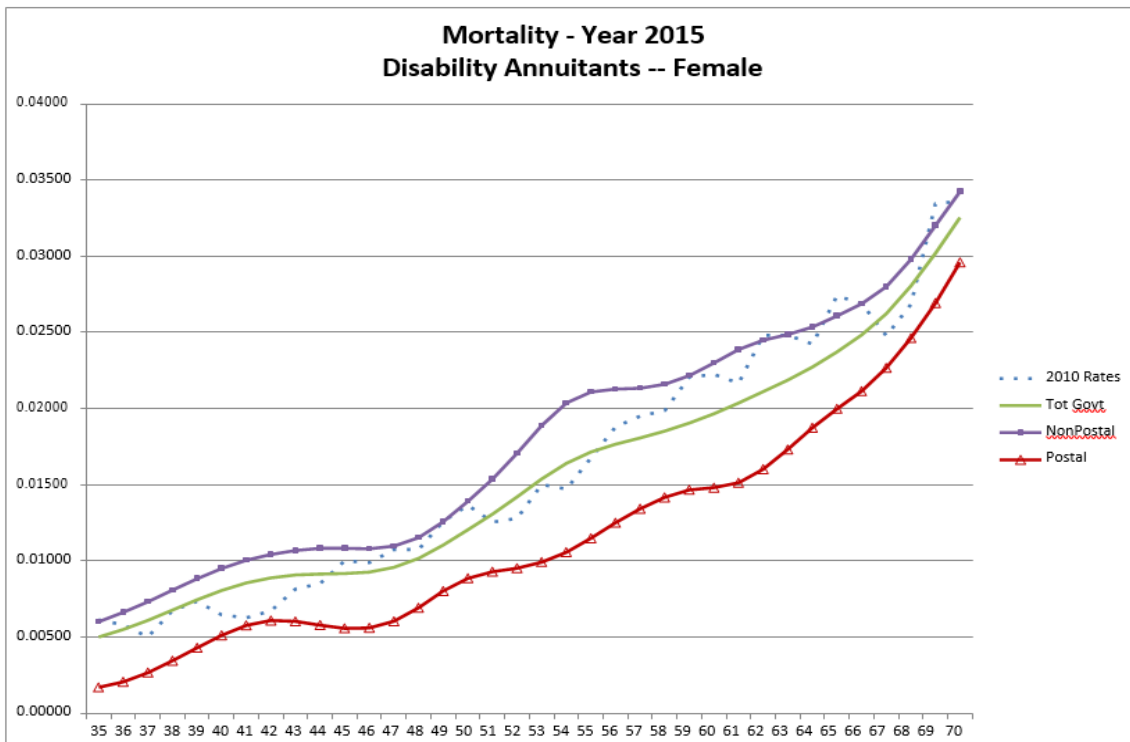
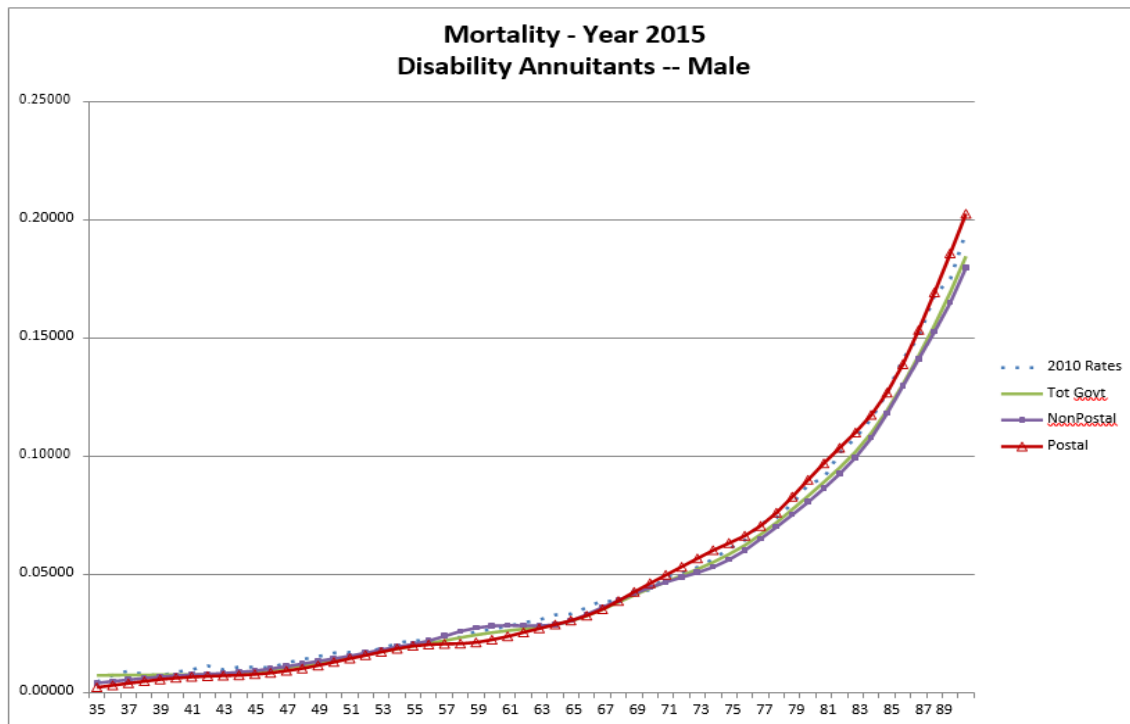




- There are less pronounced differences for female employees and non-disabled annuitants. This graph shows the annual rate of mortality for female pensioners from ages 50 to 90. The red line shows postal-specific experience at ages 50 to 65 is similar to that of non-postal pensioners, while the postal-specific experience is somewhat higher after age 65. The graph on the following page shows the annual rate of mortality for surviving spouses of female pensioners.



- Disability annuitant mortality is actually lower for Postal Service annuitants, perhaps because non-postal, white-collar worker disabilities are generally of a more serious threat to overall health. The lower postal-specific experience is particularly noticeable with female annuitants, but is modest for males at younger ages and at older ages, postal-specific mortality rates are higher.



Based on the OPM experience studies, in 2017, the Board of Actuaries and OPM set the assumptions for the September 30, 2016 actuarial valuation to experience-based tables created by OPM. In 2018, the Board of Actuaries expanded the analysis to include postal-specific mortality experience to be used for the September 30, 2017 actuarial valuation assumptions. In our opinion, the number of exposures and actual deaths is sufficient to provide a credible basis for an experience-based custom mortality table.

Recommendations

Both the 2017 and 2018 OPM slides presented to the Board of Actuaries were based on the same data, summarizing experience for years from 1996 through 2015. We suggest refreshing the source data annually and performing a full study of postal-specific experience every three to five years, so that emerging trends may be identified quickly.

For subsequent experience studies, we suggest that the OPM consider reviewing postal-service mortality experience separately for FERS and CSRS. The automation of many postal tasks has resulted in significant changes to the employment of Postal Service workers by craft (under each of the four Collective Bargaining Units). The bulk of that automation occurred in the 1990s, after the CSRS was closed to new hires in 1984, and may have led to material changes in the characteristics of FERS and CSRS employees.

We also suggest consideration of a benefits-weighted approach in the future, rather than the lives-weighted basis used. This methodology directly takes into consideration the correlation, if any, between their benefit size and the health of the annuitants.

The Society of Actuaries (SOA) is currently in the process of reviewing mortality experience for large public sector plans and an exposure draft is expected to be released later this year. When this first large-scale public sector plan mortality study is completed, we suggest that it be reviewed for compatibility with the Systems experience.

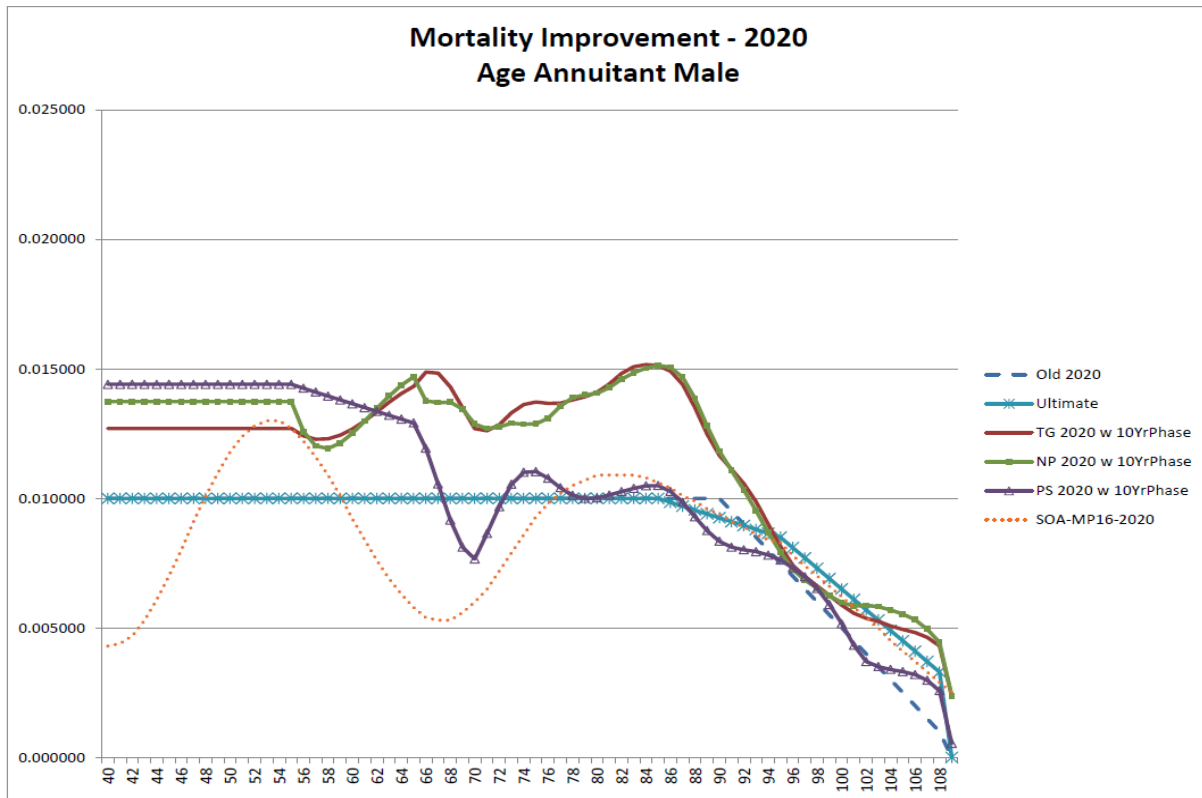
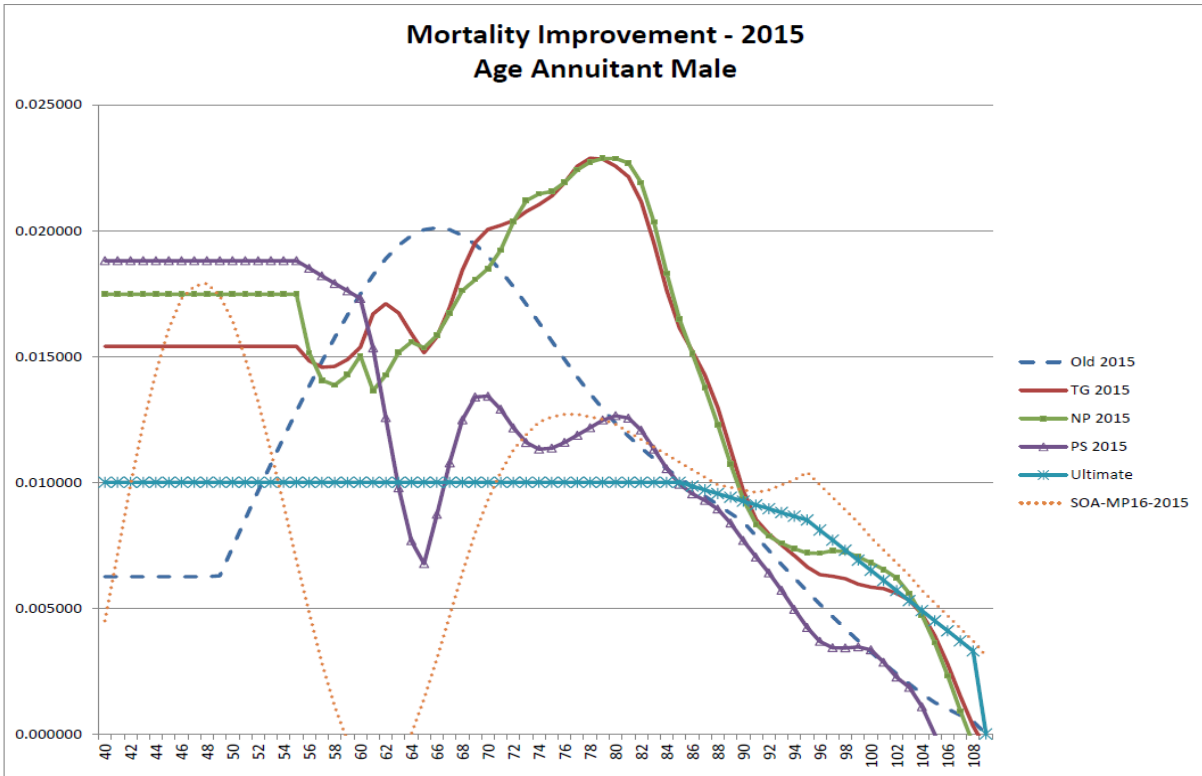
Mortality Improvement

OPM also performed extensive reviews of improvements in mortality for the combined experience of FERS and CSRS in the period 1991 to 2015. Experience was broken into categories, split by gender, for:

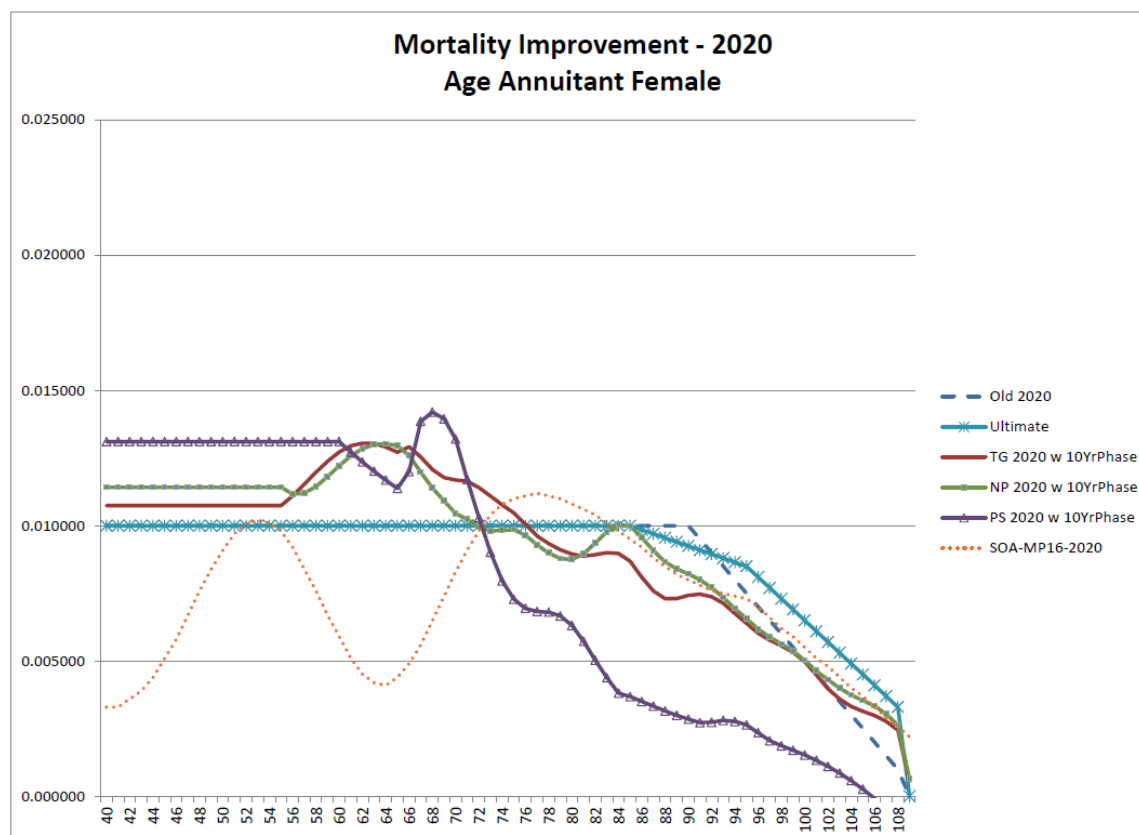
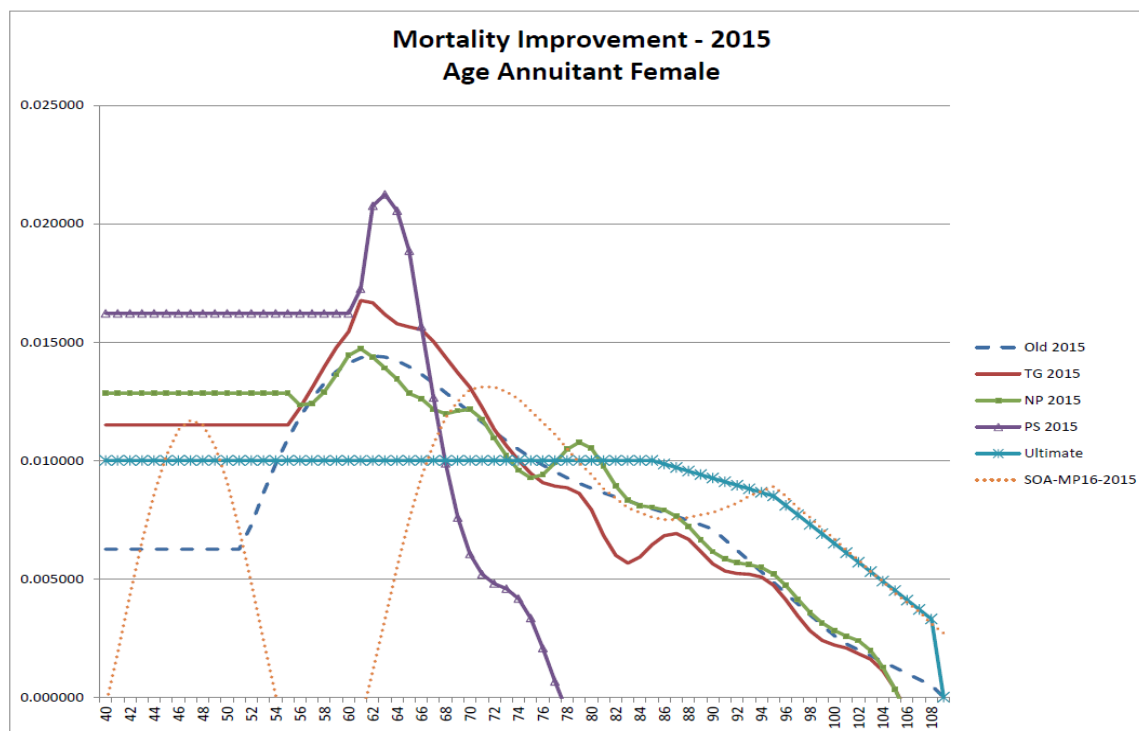
- Non-Disability Annuitants
- Disability Annuitants
- Survivors of Spouses

The results were shown for all federal government employees of each category, as well as non-postal and Postal Service employees.

When compared to non-postal experience, the Postal Service experience shows male Postal Service retirees generally have demonstrated far less mortality improvement than non-postal service retirees. These are shown as PS and NP (purple and green), respectively, on the charts that follow.



For females, the differences are not as pronounced at older ages. We suspect that data for those older, female annuitants may be less credible due to limited experience.



The Board decided to use postal-specific and non-postal experience rates, but grade to an ultimate 1% improvement rate for both groups. OPM uses a generational mortality improvement assumption to explicitly project future improvement in mortality with experience based rates of improvement through 2025, phasing-down to an ultimate 1% rate of improvement for ages up to 85.

Recommendations

Demographers have expressed a variety of opinions about the eventual rate of mortality improvement as medical and life-style advances may or may not continue, and there may be upper limit based on physical characteristics of the human body. While 1% is in the range of reasonable assumptions, and is used in recent SOA scales, some actuaries (including the Social Security Administration Office of the Actuary) assume ultimate improvement rates between $\frac{1}{2}$ to $\frac{3}{4}$ of 1%.

The Board and other actuaries in attendance discussed some of the 2018 Enrolled Actuaries Meeting sessions about mortality improvement, including long-term cautions that advances from medical technology and physical fitness may be offset by other factors (e.g. obesity, opioid use). OPM used 25 years of experience through 2015 in its experience review. The assumption for mortality improvement is not allowed to drop below 0%, even where experience shows no improvement. It was noted that the USPS OIG actuaries believe that an ultimate rate of 0.75% is more appropriate, and that the Social Security Office of the Actuary assumes an even lower ultimate rate.

In our opinion, based on the actual postal-specific mortality improvement trends presented by the OPM and the challenges of setting an appropriate assumption as discussed with other professionals, we feel the proposed assumption is reasonable, but that it would be appropriate to modify the mortality scale to project a smaller ultimate rate of improvement in mortality for postal-service employees of CSRS.

Other Demographic Assumptions

Annuitants are subject to only one demographic assumption – mortality. Employees are also valued recognizing that they may retire at normal retirement age or earlier, terminate prior to retirement age, or become disabled prior to retirement age. In each situation, the experience of Postal Service employees is quite different from that of other federal government employees. However, as a result of the closure of the CSRS plan to new hires many years ago, there are relatively few employees in CSRS compared to the number of annuitants, and those that remain are close to retirement age. Accordingly, any demographic assumption changes that may be made to reflect postal-specific experience will have a minimal effect on the actuarial liability of CSRS plan obligations.

Rates of Normal and Early Retirement

The Postal Service has a growing number of retirement-eligible employees (roughly 110,000 as of 2015), but the CSRS eligible number has fallen (to roughly 45,000). The normal retirement experience rate of Postal Service employees eligible for normal retirement benefits under CSRS who decide to retire has been relatively stable except in a few years that align with retirement incentives (2010 and 2013). The retirement experience of other federal government employees is considerably less stable. For both groups, variations in experience are smoothed by the intended use of a 20-year experience period to set the new rates.

Early retirement is generally not elective – there must be an offer to retire early. Early retirement experience does include involuntary retirements from reduction-in-force initiatives. Due to cyclical nature of retirements, OPM used the full 20 years of experience for government-wide assumptions in 2017. The number of Postal Service early retirements in years without special incentives is too small to be statistically credible so we do not feel it is appropriate or necessary to reflect postal-specific early retirement rates.

Disability Rates

Disability rates are generally higher for Postal Service employees when compared to the experience of non-postal service employees, reflecting the nature of each group's employment. Non-postal service employees are generally white collar employees with low disability rates.

Termination Rates

Termination rates are much lower for Postal Service employees than for non-postal service employees. In theory, plans with lower termination rates are more costly, because the contributions on behalf of terminated employees are retained to the benefit of continuing employees. Given that the employees in the CSRS are unlikely to forfeit any benefits even if they terminate employment before retirement, the lower Postal Service employee rates are unlikely to have much impact.

Economic Assumptions

Economic assumptions have a significant effect on the measurement of CSRS liabilities and changes to these assumptions can substantially alter the results determined by the actuary.

The primary economic assumptions that affect liability measurements are:

- Inflation
- Investment rate of return (or discount rate)
- Individual salary increase rates
- Payroll growth rate
- Administrative expenses

The goal is to have a consistent set of economic assumptions that appropriately reflect expected future economic trends. However, we were not asked to evaluate the economic assumptions, other than the salary assumption.

Salary Increases

The individual pay increase assumption is used to determine participants' projected retirement benefits. Generally, USPS employee salaries will change over their careers for a number of reasons:

- Across-the-board increases due to inflation, whether or not they are the result of automatic cost-of-living adjustments (COLAs);
- Across-the-board increases due to improved productivity and changes in the skills required of postal workers;
- Increases mandated by Congress in the PRA by the requirement that postal salaries be comparable with those in private industry;
- Increases due to normal movement through the postal pay structure tables with increased seniority, and changes in the period required to reach the top step; and
- Increases due to individual promotions.

OPM studied the General Service (GS) wage tables, the four USPS collective-bargaining agreements and merit pay increases. There is no one "general scale" that is representative of all Postal Service employees, so OPM obtained pay tables from USPS back to its inception in 1971. OPM weighted each pay table by payroll at each pay grade to get a single weighted average Postal Service pay scale. Non-postal service employees merit increases have been considerably higher (often double) compared to Postal Service employee increases.

The actual experience slides presented by OPM show a very low increase in 2004 and a spike in 2005, with another low point in 2007, then fairly level since 2009. The variability in some years is due to the fact that pay increases are often granted retroactively. The Board actuaries advised the use of a 10-year experience period for the merit based assumption, so that the extreme year-by-year variations were smoothed out. We agree that this is an appropriate methodology for setting the salary assumption.

Segal's View and Recommendations

The approach used by OPM Office of the Actuary to evaluate demographic and salary experience and set assumptions generally complies with the Actuarial Standards of Practice Nos. 4, 27 and 35.

In setting those postal-specific assumptions, the Board of Actuaries was able to review actual demographic and salary experience over the past 20 years (or shorter time frames periods when the credible data was not available). The experience data over a 20-year period is a credible basis for most of the assumptions. Where the reliability of the 20-year data was in question, the experience period was adjusted to no fewer than 10 years. This time frame still provides a reasonable basis for assumption setting pursuant to actuarial standards of practice.

The number of employees and deaths for CSRS experience was large enough to provide a credible basis for the creation of plan-specific, experience-based mortality tables for Postal workers.

Other Large Public Sector Retirement Systems

In our experience, it is common for large retirement systems such as CSRS to set assumptions for mortality, salary improvement, and other demographic assumptions based on an actuarial review of that system's actual experience. Assumed rates of employee termination and retirement are generally set based on plan-specific experience, even for medium-sized systems. The assumed rates are often set group by group – for example by employment type (General, Public Safety, Judges, etc.) or by Tier (a particular benefit design that applies to a group of employees hired over a specific time period). Use of plan-specific experience is less common with respect to assumed mortality rates, which generally are based on a published Society of Actuaries table with possible modifications to reflect geography or observed differences in plan experience.

However, some very large systems rely almost exclusively on the experience of their own retiree population. Examples of very large systems surveyed include the Railroad Retirement Board (RRB), the California Public Employee Retirement System (CalPERS) and the California Teachers System (CalSTRS). RRB and CalPERS rely directly on their own mortality experience, even for disabled life mortality, and smooth the resulting age-by-age rates using actuarial graduation methods to develop a mortality table assumption. The most recent (December 30, 2016) experience study for CalSTRS states: “CalSTRS uses custom mortality tables to best fit the patterns of mortality among its members. These custom tables are based on standard mortality tables adjusted to fit CalSTRS experience.”

The use of a custom experience-based mortality improvement scale is not common, but the largest systems do rely on observed improvement rates over time, combined with actuarial judgement as to the extent of future possible improvements and the ultimate rate thereof.

For systems with a smaller number of members, the mortality or disability experience may not be a credible basis for setting assumptions. In this situation, a typical approach would be to blend the system's experience with an appropriate published table. For example, a system may choose to blend their own actual mortality experience with the RP-2014 Mortality Tables published by the Society of Actuaries.

In our opinion, the length of the experience period reviewed combined with the large number of CSRS members is a sufficient basis for establishing the full set of postal-specific assumptions.

Segal's Recommendation

After reviewing the experience studies and other relevant documents, and discussions with the actuaries who prepared the studies, as well as other interested parties, we have concluded that, in the context of actuarial standards and our experience, it is appropriate to use postal-specific assumptions based on the observed demographic experience for determining the CSRS supplemental liability.

We were not asked to perform a recalculation of the CSRS supplemental liability, however, we do anticipate that use of postal-specific assumptions will materially reduce the CSRS supplemental unfunded liability. The USPS OIG Financial Directorate Retirement Projections from March 2017 indicate that the September 30, 2016 CSRS liability would decrease by approximately 2%, from \$191.9 billion based on a change from the government-wide assumptions at that time, to \$188.1 billion based on postal-specific assumptions recommended by the USPS OIG actuaries.

Conclusion

We acknowledge the cooperation and information shared in our discussions with the staff at the PRC and actuaries at OPM, PRM and Korn Ferry. We look forward to discussing these matters in briefing sessions as requested.

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